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| 10/649,626 | 08/28/2003 | Hiroshi Kushitani | 2003_1179A | 5547 |

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EXAMINER

TAKAOKA, DEAN O

ART UNIT PAPER NUMBER

2817

DATE MAILED: 11/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,626

Applicant(s)

KUSHITANI ET AL.

Examiner

Dean O Takaoka

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/28/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "capacitive coupling" (claim 2) and "two SAW filters" (claim 4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Weigand (US 5,990,580).

Claim 1:

Weigand (Fig. 1) shows a high frequency switch (where Weigand teaches an RF switch; where the term high frequency is a relative term not defined by the claim, thus where the RF switch of Weigand being high frequency) comprising a first FET switch (9) connected between an input and output (I/O) port (2) and transmission port (3); a second FET switch (10) whose one end is connected between said I/O port and a reception port (5) and the other end is ground (11); a control port (18) for controlling turning on and off the first and second FET switches; and a stripline (12) connected between one end of the second FET switch and the I/O port, the stripline having an electrical length equivalent to $\frac{1}{4}$ wavelength of a high frequency signal input from the transmission port.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weigand in view of Furutani et al. (US 6,788,958).

Claims 2 – 4:

Weigand teaches the high frequency switch, discussed in the reasons for rejection of claim 1 above, and further shows capacitive coupling (8) at the reception port but does not teach a high frequency filter such as a SAW filter.

Furutani shows a similar high frequency switching comprising high frequency SAW filters (Fig. 5) where the SAW filters are also capacitively coupled (C41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switch disclosed by Weigand with the high frequency SAW filters disclosed by Furutani et al. Such a modification would have realized the advantageous benefit of providing filtering for DCS and PCS reception (col. 6, lines 49-56) and where it is well-known in the art that diode or FET switching are art-recognized equivalent switches (where Weigand teaches prior art switching by diodes – col. 1, lines 10-17) thus suggesting the obviousness of the modification.

Claim 5:

Weigand teaches the high frequency switch, discussed in the reasons for rejection of claim 1 above, and further shows capacitive coupling (8) at the reception port and $\frac{1}{4} \lambda$ stripline (12) but does not teach a multi-layer board.

Furutani shows a similar high frequency switch comprising high frequency SAW filters (SAW 1, 2 – Fig. 5) where the stripline (STxx) is formed in a multilayer board (Fig.

9A-10G), where the first and second switches are mounted on a surface of the multilayer board (diodes – Fig. 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switch disclosed by Weigand with the multilayer board disclosed by Furutani et al. Such a modification would have realized the advantageous benefit of providing a compact package for transmission and reception for GSM, DCS and PCS (col. 1, lines 29-55), thus suggesting the obviousness of the modification.

Claim 6:

Where an LC filter is connected to an end of the transmission port (Furutani et al. – LC filter 15 or 16 – Fig. 1), the LC filter being formed in an inner layer of the multilayer board (Furutani et al. – Figs. 6 , 7 with respect to Figs. 9A-10G).

Claim 7:

Where a SAW filter (Furutani et al. – SAW 1, 2) is connected to an end of the reception port, the SAW filter being mounted on the surface of the multilayer board (Furutani et al. – Fig. 8).

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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